REMARKS

The Applicant has made certain amendments to the specification to identify on pages 1, 2, 5, and 12 because of the issuance of U.S. Patent application Serial No. 09/388,052 as U.S. Patent No. 6,264,462. Additional amendments were also made to page 14 to refer to the space or chamber 70 and not as chamber 72.

In addition, Fig. 1 of the drawing was amended to refer to the polymer transfer and deposition device by the "arrow A" (see page 8, line 11). In addition, Fig. 16 was amended to refer to the cutters at the top of the figure by the correct numeral "85" and not the numeral "80".

For purposes of clean copy, Applicant has substituted claims 43-71 inclusive for original claims 1-42 which were canceled. The majority of the canceled claims were rejected on several different grounds under 35 U.S.C. 103(a) on "obviousness". The Patent Examiner rejected the claims as unpatentable over Vismara (5,304,050) or Vismara in view of Buckley et al (5,364,258) or Vismara in view of Oono et al (66270331).

In order to distinguish over the prior art, Applicant now includes in claims 43-71 additional structures and functions which distinguish over Vismara alone or when combined with the other prior art patents. Specifically, claim 43 requires that the transport and deposition device is "a movable non-rotatable hollow transport and deposition device which is separate and independent from the plasticating machine". Claim 43 further requires that the transport device include top and bottom walls (43, 44) and a pair of end walls (45, Fig. 3). An inlet port (38a) is provided in the top wall (43) and an exit port (42) is provided in the bottom wall (44). The conveyer as set forth in the claim moves the transport and disposition device (18, 20) into alignment with the discharge device (16, Fig. 2) and one or more locations where the ram (36), when energized, discharges the polymer through the exit port 42.

Vismara discloses a different type of system or machine for molding bonded plastic materials such as foamable or expanded plastic material, in particular expanded polystyrene in combination with a rigid plastic material 2. The machine includes a reforming station 1 (Figs 1-3), the rigid plastic material 2, a molding station 3 for molding the foamable plastics material onto the preformed material, a station 4 for feeding the rigid material 2 to the reforming station 1, and means 5 for

feeding the foamable plastic materials to the molding station 3 as shown in Fig. 1 where the molded piece P is manufactured. The system further includes a discharge station 6, a pre-heating station 7 positioned upstream of the reforming station 1 as shown in Fig. 2. No where does Vismara disclose a "moveable non-rotatable hollow transport and deposition device, separate and independent from the plasticating machine" or "a ram located with said first transport and deposition device for moving the molten polymer toward said exit port" as now required by the claims. Such features are not disclosed in the secondary references relied upon by the Patent Examiner.

Section 103 provides in part that the differences between the subject matters sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains, then a patent may not be obtained. Thus, for dependent claims 44-53 inclusive, the Examiner must also consider independent claim 43 and any intervening claims from which the claims depend, thereby considering the claimed "subject matter as a whole".

New claim 44 is dependent upon claim 43 and distinguishes further over the prior art by including a first robotic device (Fig. 5) wherein, prior to the conveyor moving the carrier (60) to the forming device, the first robotic device (47) is energized to place an insert (57) on the first layer (59) of plasticized polymer on the carrier (60). The claim requires that the conveyor moves the carrier into a position underneath the exit port of the first transport and deposition device (20) wherein the ram (36) discharges through the exit port (42) a second layer of plasticized material. It is deposited on the carrier (60) over the insert and the first layer. Finally, the drive means is effective to operate the conveyor (20, 24) to move the carrier, insert and the first and second layers of plasticized polymer into the forming device (12, 14) to produce an article of desired shape.

Neither Vismara or Buckley et al '258 (cited for utilizing conveyors and robotic means) teach or make obvious the use of a first robotic device to place an insert on a first layer of plasticized polymer and then to energize the ram (36) to discharge a second layer of plasticized material over the insert, first layer and carrier.

New claim 45 is dependent upon claim 44 and distinguishes over the prior art by calling for a second robotic device (Fig. 6) which is located between the first transport and deposition (20) and the forming device. An undercarriage (46) is provided beneath the carrier (60) to support it during the depositing of the first layer, insert and second layer of plasticized molten polymer (59) on the carrier (60). The second robotic device has a vertically mounted robot guide (53) having at the bottom edge thereof a curved surface located in close proximity to the undercarriage 46 and the carrier and the first layer, insert and second layer of plasticized molten polymer. The robot guide (53) is provided with and supports a surface layer of material (26). The drive means of the polymer transfer and deposition system is effective to move the undercarriage (46) with the carrier and layers thereon into a position underneath the curved surface of the robot guide (53) where the surface layer of material (26) is placed by the robot guide (53) on the carrier (60), insert and layers of polymer. Robot guide (53) thereafter applies a compressive force between the undercarriage and the surface area of material (26), the first layer, insert and second layer (59) and carrier (60) to laminate the layers and carrier together. The apparatus and structure disclosed in the prior art does not utilize a robotic device as required in claim 45.

New claim 46 is dependent upon claim 43 and distinguishes further over the prior art whether considered alone or combined by calling for a polymer transfer and deposition system where a second transport and deposition device (20) is included, similar in construction to the first transport and deposition device (20). The first transport device is aligned, spaced apart and arranged parallel to the second transport and deposition device (Fig. 8). The second transport and deposition device contains a plasticized molten polymer which, when the drive means of the system is operated, is effective to operate the conveyor and move the carrier with the first layer of plasticized polymer thereon under the exit port of the second transport and deposition device where the ram discharges through the exit port a second layer of plasticized molten polymer over the first layer of polymer deposited on the carrier.

New claim 47 defines a polymer transfer and deposition system and is dependent upon claim 46. It includes a first robotic device which when energized places an insert on the first layer of plasticized molten polymer on the carrier prior to the second layer of plasticized molten polymer being placed on the insert and over the first layer. This occurs all prior to moving the combined carrier with the insert

and deposited layers of plasticized polymer into the forming device to an article of desired shape.

New claim 48 defines a polymer transfer and deposition device and is dependent from claim 47. It requires a second robotic device which is located between the first transport and deposition device and the forming device. An undercarriage is provided on the carrier to support it during the depositing of the first layer, insert and second layer of plasticized molten polymer on the carrier. The second robotic device has a vertically mounted robot guide having at the bottom edge a curved surface located in close proximity to the undercarriage and the carrier, first layer, insert and second layer of the plasticized molten polymer. The robot guide carries and supports a surface layer of material. The drive means is effective to move the undercarriage with the carrier and layers thereon into a position underneath the curved surface of the robot guide where the surface layer of material is placed by the robot guide on the carrier, inserts and layer of polymer. The robot guide applies a compressive force between the undercarriage and the surface layer of material, carrier and layers of polymer to laminate the layers and carrier together.

New dependent claim 49 defines a polymer transfer and deposition system as defined in claim 43 wherein the forming device contains a cavity or concave section on one side and a core or convex section on the opposite side where the forming device compresses the carrier and the layers of plasticized polymer into an article of a desired shape.

New dependent claim 50 defines the polymer transfer and deposition system as defined in claim 49, with the forming device having at least two formed shapes having matching edges on the concave side when the matching edges are opposite each other, with each matching edge having the carrier side on the matching edge surface where the carrier side edges are sealed together to form a closed container as shown in Figs. 11-13 inclusive.

New dependent claim 51 defines a polymer transfer and deposition system as in claim 43. An undercarriage is provided beneath the carrier to support it during the depositing of the first layer of plasticized molten polymer on the carrier, with the undercarriage separating from the carrier when the carrier and first layer of plasticized polymer enter the forming device to produce an article of desired shape.

New dependent claim 52 relates to a polymer transfer and deposition system as defined in claim 51, wherein the undercarriage holds the carrier via a vacuum, with the vacuum being discontinued prior to forming an article of the desired shape in the forming device. While the prior art may teach the use of a vacuum, such use is with a different type molding system which does not utilize the transport and deposition device of the present invention.

New dependent claim 53 is dependent upon claim 51 and requires that the undercarriage holds the carrier with clamps, with the clamps separating from the carrier and the first layer of plasticized polymer prior to forming an article of a desired shape in the forming device. Clamps have been utilized heretofore but not in the environment of the system as disclosed as claimed in the present invention.

Independent claim 54 and claims 55-59 inclusive which are dependent either directly or indirectly from claim 54 define a polymer transfer and deposition system limited to a conveyor utilizing a carrier or generally planar shape attached thereto, with the carrier being made from a polyolefin or polyester material of non-woven construction with the weight of at least 0.75 oz./ square yard. Applicant recognizes that defining the carrier as being made from a polyolefin or polyester material of non-woven construction with the weight of at least 0.75 oz./square yard is of no significance in determining patentablility of the apparatus claim because of Ex parte Thibault 164 USPQ, 666, 667 (Bd. App. 1969). The use of such language in the claim limits the scope of the claim 54-59. Claim 54 otherwise distinguishes over the prior art because of additional structural and functional features. As an example, claim 54 calls for a "moveable non-rotatable hollow first transport and deposition device separate and independent from the plasticizing machine". In addition, claim 54 calls for "first transport and deposition device including top and bottom walls and a pair of end walls". Further, claim 54 requires "an entrance port in the top and an exit port in the bottom wall". These and other structural features have been discussed previously in connection with claims 43-53 inclusive.

Claims 55-59 are each dependent either directly or indirectly from claim 54 and define further structural and functional features of the present invention.

New independent claim 60 and dependent claims 61-67 inclusive are dependent either directly or indirectly from claim 60. The claims are distinguishable

from the other two groups of claims by requiring the conveyor to have a carrier of generally planar shape attached thereto, with the carrier being made from material taken from the group including a fluoropolymer film, a coated film and a pre-printed film to provide a specific surface characteristic in the article to be formed in the forming device. The definition of the material used for the carrier limits the scope of the claims. Such material definition is of no significance in determining patentability in view of the prior art. Claim 60 has certain structural and functional features which distinguish the claim from the prior art, as an example, the claims require a "movable non-rotatable hollow transport and deposition device separate and independent from the plasticating machine". In addition the claim requires the transport device to include top and bottom walls and a pair of end walls. An inlet port is required which is provided in a top wall and an exit port is provided in the bottom wall. Thus claim 60 and dependent claims 61-67 are distinguished from the prior art.

New claims 68-71 inclusive are each directed to a method of making a three dimensional product in a forming device. Independent claim 68 calls for the steps of providing a source of a flowable molten polymer; directing the molten polymer into a transport device having an inlet port, an outlet port and a ram movable in the transport device for delivering the molten polymer to the exit port; placing a carrier of generally planar shape on a conveyor; moving the conveyor and the carrier to a first position beneath the exit port of the transport device; energizing the ram so as to discharge through the exit port a first layer of plasticized molten polymer which is deposited on the carrier; and the final step of moving the conveyor and carrier with the first layer of plasticized molten polymer into the forming device to produce an article of desired shape.

New dependent claim 69 is dependent upon claim 68 and further requires the step of prior to moving the conveyor and carrier into the forming device the step of energizing the ram so as to discharge through the exit port a second layer of plasticized molten polymer which is deposited on the first layer and carrier.

New dependent claim 70 is dependent upon claim 68 and includes, prior to moving the conveyor and carrier into the forming device, the steps of placing an insert on the first layer of plasticized molten polymer and carrier and thereafter energizing the ram so as to discharge through the exit port a second layer of

plasticized molten polymer which is deposited over the insert and the first layer and carrier.

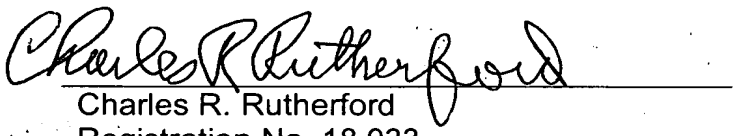
Claim 71 is further dependent upon claim 68 and distinguishes further over the prior art by placing an insert on the first layer of plasticized molten polymer and carrier and thereafter energizing the ram so as to discharge through the exit port a second layer of plasticized molten polymer which is deposited over the insert and the first layer and carrier; placing a layer of material over the second layer of molten polymer; and applying a compressive force to the carrier together by applying layers to laminate the carrier and layers together.

Conclusion

Applicant's counsel will be pleased to discuss with the Patent Examiner, if required, any remaining issues raised by this Amendment.

It is respectfully submitted that the application is in condition for allowance and such action is respectfully requested.

Dykema Gossett PLLC

By: 

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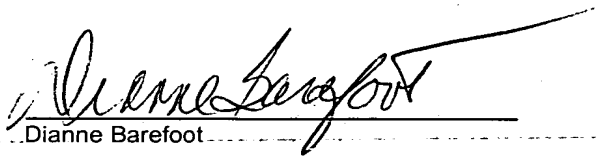
CERTIFICATE OF MAILING

I hereby certify that this *Amendment* is being deposited with the United States Postal Service on this ____ day of November, 2003 in an envelope as first class mail addressed to the Assistant Commissioner for Patents, Washington, D.C. 20231.



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